

## REMARKS

The Final Office Action mailed December 11, 2009 has been received and reviewed. Claims 1 through 30 and 32 are noted therein as currently pending in the application. Claims 26 and 31 were earlier canceled. Reconsideration of the application is respectfully requested.

### **35 U.S.C. § 103(a) Obviousness Rejections**

Claims 1 through 6, 10 through 19, 27 through 30, and 32 were rejected in the Office Action as assertedly being obvious under 35 U.S.C. § 103(a) over US Patent 5,405,656 ("Ishikawa") in view of U.S. Patent 5,731,364 ("Sinta") and U. S. Patent No. 5,981,135 ("Koes").

Each of independent claims 1, 12, and 32 were amended in the prior amendment to include subject matter from canceled claim 26, and require that the process include the step of "after formation of the metal layer, removing the masking layer." It is noted that at page 4, the Final Office Action states that "Ishikawa in view of Sinta does not disclose that the masking layer (resist pattern) is removed after forming the metal layer (via plating), and that a strongly basic solution is used to remove the masking layer (remaining resist pattern mask)". In the previous response, Applicant respectfully submitted that examination of Ishikawa makes it clear that the present claims are not obvious. In the Final Office Action, the rejection was maintained, the Final Office Action stating:

Applicants argue that Ishikawa teaches against masking "portions of a substrate other than those on which Pt electrodes are to be formed, applying a catalyst under such a masking condition in a conventional manner" which requires removing the mask in a manner that increases the number of steps needed to form the electrodes.

Applicant is picking and choosing words from different sentences of portions cited in the Background of Ishikawa. However, nowhere is it cited in Ishikawa, that a photolithographic process causes an increase in the number of steps to form electrodes. Applicant is citing col 2, lines 61-through 67, col 3, lines 1-7; but has conveniently omitted lines 3-6, which clearly discloses an adhesive masking tape method of selective plating, not photolithography. Also, Ishikawa cites in the same portion, mentioned

above, the benefits of reduced costs; and it is the masking of each article with adhesive tape that may cause an increase in step, and not photolithography. In photolithography, the resist layer formed is exposed and developed resulting in mask formation throughout the desired areas to be masked, it does not require multiple steps to form a masked area i.e., once developed a plurality of masked areas are obtained in a single step. Also, Ishikawa teaches forming a patterned ITO layer, not a blank ITO layer to be plated, but a patterned ITO layer that is plated selectively.

Applicant initially notes that the cited section of Ishikawa includes the lines which are stated as being "conveniently omitted", and that these lines were explicitly quoted in the prior Amendment, as consideration of this entire section is necessary for consideration of the reference in its entirety. Applicant respectfully submits that consideration of the Ishikawa reference as whole, in accordance with a proper application of the applicable standards clearly demonstrates that this reference teaches away from the combination suggested in the Office Action.

As explained in the MPEP at § 2141.02(VI), a prior art reference must be considered in its entirety, *i.e.*, as a whole, including portions that would lead away from the claimed invention. *W.L. Gore & Associates, Inc. v. Garlock, Inc.*, 721 F.2d 1540, 220 USPQ 303 (Fed. Cir. 1983), cert. denied, 469 U.S. 851 (1984). However, "the prior art's mere disclosure of more than one alternative does not constitute a teaching away from any of these alternatives because such disclosure does not criticize, discredit, or otherwise discourage the solution claimed.." *In re Fulton*, 391 F.3d 1195, 1201, 73 USPQ2d 1141, 1146 (Fed. Cir. 2004).

Further, MPEP § 2145(X)(D)(2) explains that it is improper to combine references where the references teach away from their combination. *In re Grasselli*, 713 F.2d 731, 743, 218 USPQ 769, 779 (Fed. Cir. 1983). The following subsection further explains that "[k]nown disadvantages in old devices which would naturally discourage search for new inventions may be taken into account in determining obviousness." *United States v. Adams*, 383 U.S. 39, 52, 148 USPQ 479, 484 (1966).

In the examples, Ishikawa discloses using several different mask types, using both laser and UV radiation. Beginning at column 18, line 50, Ishikawa specifically

discloses using a resist mask to restrict the surface portions upon which catalyst is deposited, setting forth:

FIGS. 8A to 8C illustrate the formation of Pt electrodes according to the method of partially catalytically treating a substrate. In this example, however, the substrate was irradiated with UV rays instead of a laser beam in the presence of a mask. In the method shown in this figure, the immersion of a substrate of an O<sub>2</sub> sensor in a solution for catalytic treatment as shown in FIG. 8A was performed in the same manner as that shown in FIG. 6A. Then the substrate treated with a catalyst was selectively irradiated with light as shown in FIG. 8B. In this Example, the irradiation-light used was the UV light rays from a lamp 12. The substrate was irradiated through a mask 37 for selective irradiation. The mask could be formed from, for instance, resist materials. As shown in FIG. 8B, the catalyst-metal 33 was thus deposited only on the portions of the surface of the substrate 31 which did not covered with the mask 37. **Then the mask was removed and the catalyst-metal ions remaining on the surface of the substrate were dissolved and removed in the same manner as described above. In this respect, the removal of the mask and the catalyst-metal ions optionally could be performed simultaneously.**

**After completion of the partial catalytic treatment and water washing, electroless plating was performed as shown in FIG. 8C.** More specifically, the substrate 31 of the O<sub>2</sub> sensor was immersed in a chemical plating bath 13 for platinum plating in the presence of the partially formed catalyst-metal layer. After the lapse of a desired time, Pt electrodes 32 were formed on the substrate 31. (Emphasis added).

Thus, Ishikawa discloses use of a resist mask that is removed prior to plating, and preferably removed simultaneously with the catalysis metal ions in a single step. In none of the examples, is a mask used that is removed after plating or in a manner that requires an additional step.

As discussed in the prior response, Beginning at column 2, line 61, Ishikawa explains that the invention thereof differs from the known prior art by not requiring an increased number of steps from the application and removal of a masking material, stating:

Under such circumstances, there have been proposed a variety of methods of partially applying a catalyst to the surface of a substrate, to thus permit a selective formation of Pt electrodes. For example, KOKAI No. 61-234351 proposes the use of an adhesive tape. **More specifically, the**

**method disclosed in this patent comprises masking, with an adhesive tape, portions of the surface of a substrate other than those on which Pt electrodes are to be formed, applying a catalyst under such a masking condition in a conventional manner, and then peeling off or removing the adhesive tape. In this method, however, the adhesive tape for masking must be applied to each article and although this reduces the cost of the electrode material (such as Pt), the number of steps is increased. (Emphasis added).**

Ishikawa thus specifically sets forth that it defines over the prior art, since the prior art requires masking the surface of a substrate, "applying a catalyst under such a masking condition in a conventional manner", and removing the mask in a manner that requires an increase in the number of steps needed to form the electrodes.

Combining the references in the manner suggested in the Office Action would require an additional step be performed, that of removing the masking layer after formation of the metal layer. Since using a masking material in a manner that increases the number of required steps is criticized and discouraged by Ishikawa, Ishikawa clearly teaches away from the suggested combination.

Accordingly, it is respectfully requested that independent claims 1, 12 and 32 be allowed, together with dependent claims 2 through 6, 10, 11, 13 through 19, and 27 through 30.

Claims 7 through 9 and 20 were rejected in the Office Action as assertedly being obvious under 35 U.S.C. § 103(a) over Ishikawa in view of Sinta and Koes, and further in view of European Patent Application 0518422 ("De Bakker"). Such claims depend from independent claim 1 and are allowable as depending from an allowable base claim.

Claims 21 through 25 were rejected in the Office Action as assertedly being obvious under 35 U.S.C. § 103(a) over Ishikawa in view of Sinta and Koes, and further in view of De Bakker and U.S. Patent 5,395,678 ("Matsushima"). Such claims depend from independent claim 1 and are allowable as depending from an allowable base claim.

## CONCLUSION

All pending claims are believed to be in condition for allowance, and an early notice thereof is respectfully solicited. Should the Office determine that additional issues remain which might be resolved by a telephone conference, the Examiner is respectfully invited to contact Applicants' undersigned attorney.

Respectfully submitted,



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